

FUEL CELL ENERGY MANAGEMENT SYSTEM
FOR COLD ENVIRONMENTS

ABSTRACT OF THE DISCLOSURE

An energy management system controls the temperature of a fuel cell system while a vehicle is not running. The energy management system includes a fuel cell stack, a blower that provides air to the fuel cell stack, a water supply, and a hydrogen supply. A hydrogen supply valve is connected between the hydrogen supply and the fuel cell stack. A heater is connected to an output of the fuel cell stack. A controller controls the hydrogen supply valve and the blower to power the heater to warm the fuel cell stack and the water supply. The controller starts the blower and opens the hydrogen supply valve if heating is necessary and if a tank level signal exceeds a first tank level value. The controller activates a purge, drains water from the water supply, and inhibits vehicle startup if the tank level signal does not exceed a first tank level value.